GA-7PESH1
GA-7PESH2

Dual LGA2011 sockets motherboard for Intel® E5-2600 series processors

User's Manual

Rev. 1001

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Documentation Classifications

In order to assist in the use of this product, GIGABYTE provides the following types of documentations:

- ■ For quick set-up of the product, read the Quick Installation Guide included with the product.
- ■ For detailed product information, carefully read the User's Manual.

For product-related information, check on our website at:

http://www.gigabyte.com

Table of Contents

Box Contents

- ☑ Motherboard
- ☑ Driver CD
- ☑ Two SATA cables
- ☑ I/O Shield

- The box contents above are for reference only and the actual items shall depend on the product package you obtain. The box contents are subject to change without notice.
- The motherboard image is for reference only.

GA-7PESH1/7PESH2 Motherboard Layout

Item	Code	Description
1	SW1	ID switch
2	MLAN (GA-7PESH1)	BMC Management LAN port
	USB_MLAN (GA-7PESH2)	BMC Management LAN port (top) / USB ports (bottom)
3	USB_LAN1 (GA-7PESH1)	LAN1 port (top) / USB ports (bottom)
	GLAN1 (GA-7PESH2)	LAN1 port
4	USB_LAN2 (GA-7PESH1)	LAN2 port (top) / USB ports (bottom)
	GLAN2 (GA-7PESH2)	LAN2 port
5	VGA_1	VGA port
6	COM1	Serial port
7	P12V_AUX2	8 pin power connector
8	DDR3_P1_H1	Channel H slot 1 (for secondary CPU)
9	DDR3_P1_H0	Channel H slot 0 (for secondary CPU)
10	DDR3_P1_G1	Channel G slot 1 (for secondary CPU)
11	DDR3_P1_G0	Channel G slot 0 (for secondary CPU)
12	CPU1	Intel LGA2011 socket (Secondary CPU)
13	ATX1	24-pin power connector
14	PWR_DET1	PM Bus connector
15	P12V_AUX1	8 pin power connector
16	DDR3_P0_A0	Channel A slot 0 (for primary CPU)
17	DDR3_P0_A1	Channel A slot 1 (for primary CPU)
18	DDR3_P0_B0	Channel B slot 0 (for primary CPU)
19	DDR3_P0_B1	Channel B slot 1 (for primary CPU)
20	CPU0_FAN	CPU0 fan cable connector
21	CPU0	Intel LGA2011 socket (Primary CPU)
22	DDR3_P0_D1	Channel D slot 1 (for primary CPU)
23	DDR3_P0_D0	Channel D slot 0 (for primary CPU)
24	DDR3_P0_C1	Channel C slot 1 (for primary CPU)
25	DDR3_P0_C0	Channel C slot 0 (for primary CPU)
26	SYS_FAN2	System fan cable connector
27	LED2	LSI firmware readiness LED
28	SATA_SGPIO	SATA SGPIO connector
29	MINI_CN3	Mini SAS cable connector
30	MINI_CN2	Mini SAS cable connector
31	FLASH_DP1	Flash descriptor security jumper
32	MINI_CN1	Mini SAS cable connector (SATA 3.0Gb/s signal)
33	SATA0/1	SATA 6.0Gb/s connectors
34	BP_1	HDD back plane connector
35	SYS_FAN1	System fan cable connector
36	FRONT_USB	Front USB connector
37	F_PANEL1	Front panel connector
38	IPMB1	IPMB connector
39	TPM_1	TPM connector
40	SKU_KEY1	PBG A SKU Select connector
41	PCIE_5	PCI-E slot 5 (x4 slot / x1 bus)

42	PCIE_4	PCI-E slot 4 (x16 slot / x8 bus)
43	BMC_LED1	BMC firmware readiness LED
44	PCIE_3	PCI-E slot 3 (x8 slot / x4 bus)
45	PCIE_2	PCI-E slot 2 (x16 slot/x16 bus)
46	PCIE_1	PCI-E slot 1 (x8 slot / x4 bus)
47	DDR3_P1_E0	Channel E slot 0 (for secondary CPU)
48	DDR3_P1_E1	Channel E slot 1 (for secondary CPU)
49	DDR3_P1_F0	Channel F slot 0 (for secondary CPU)
50	DDR3_P1_F1	Channel F slot 1 (for secondary CPU)
51	CPU1_FAN	CPU1 fan cable connector
52	BAT1	Battery
53	CLR_CMOS1	Clear CMOS jumper
54	BIOS_WP1	BIOS write protect jumper
55	SSB_ME1	ME recovery jumper
56	JP1	Chassis intrusion jumper
57	PASSWORD1	Clear password jumper
58	BIOS_RVCR1	BIOS recovery jumper
59	SATA_DOM0	SATA0 port DOM support jumper
60	SATA_DOM1	SATA1 port DOM support jumper

CAUTION! If a SATA type hard drive is connected to the motherboard, please ensure the jumper is closed and set to **2-3 pins** (Normal mode), in order to reduce any risk of hard disk damage. Please refer to Page 33 for SATA_DOM0 and SATA_DOM1 jumper setting instruction.

Chapter 1   Hardware Installation

1-1   Installation Precautions

The motherboard contains numerous delicate electronic circuits and components which can become damaged as a result of electrostatic discharge (ESD). Prior to installation, carefully read the user's manual and follow these procedures:

- Prior to installation, do not remove or break motherboard S/N (Serial Number) sticker or warranty sticker provided by your dealer. These stickers are required for warranty validation.
- Always remove the AC power by unplugging the power cord from the power outlet before installing or removing the motherboard or other hardware components.
- When connecting hardware components to the internal connectors on the motherboard, make sure they are connected tightly and securely.
- When handling the motherboard, avoid touching any metal leads or connectors.
- It is best to wear an electrostatic discharge (ESD) wrist strap when handling electronic components such as a motherboard, CPU or memory. If you do not have an ESD wrist strap, keep your hands dry and first touch a metal object to eliminate static electricity.
- Prior to installing the motherboard, please have it on top of an antistatic pad or within an electrostatic shielding container.
- Before unplugging the power supply cable from the motherboard, make sure the power supply has been turned off.
- Before turning on the power, make sure the power supply voltage has been set according to the local voltage standard.
- Before using the product, please verify that all cables and power connectors of your hardware components are connected.
- To prevent damage to the motherboard, do not allow screws to come in contact with the motherboard circuit or its components.
- Make sure there are no leftover screws or metal components placed on the motherboard or within the computer casing.
- Do not place the computer system on an uneven surface.
- Do not place the computer system in a high-temperature environment.
- Turning on the computer power during the installation process can lead to damage to system components as well as physical harm to the user.
- If you are uncertain about any installation steps or have a problem related to the use of the product, please consult a certified computer technician.

1-2   Product Specifications

CPU	◆	Support for Intel® Xeon® E5-2600 series processors in the LGA2011 package
	◆	L3 cache varies with CPU
	◆	Supports QuickPath Interconnect up to 8GT/s
	◆	Enhanced Intel SpeedStep Technology (EIST)
	◆	Support Intel Virtualization Technology (VT)
Chipset	◆	Intel® C602 (Patsburg) Chipset
Memory	◆	16 x 1.5V DDR3 DIMM sockets supporting up to 128GB (UDIMM) and 512GB (RDIMM) of system memory
		* Due to Windows 32-bit operating system limitation, when more than 4 GB of physical memory is installed, the actual memory size displayed will be less than 4 GB.
	◆	16 x 1.35V DDR3L DIMM sockets supporting up to 128 GB of system memory
	◆	Four channel memory architecture
	◆	Support for 800/1066/1333/1600 memory modules
	◆	Support for ECC RDIMM/ UDIMM memory modules
LAN	◆	Intel® I350 supports 10/100/1000 Mbps (GA-7PESH1)
	◆	Intel® X540-AT2 supports dual 10G Base-T ethernet LAN ports (GA-7PESH2)
Expansion Slots	◆	1 x PCI Express x16 slot, running at x16 (Gen3/PCIE_2)
	◆	1 x PCI Express x16 slot, running at x8 (Gen3/PCIE_4)
	◆	2 x PCI Express x8 slot, running at x4 (Gen3/PCIE_1/PCIE_3)
	◆	1 x PCI Express x4 slot, running at x1 (Gen2/PCIE_5)
Onboard Graphics	◆	ASPEED® AST2300 supports 16MB VRAM
Storage Interface	◆	Intel® C602 controller
	◆	2 x SATA 6Gb/s connectors (SATA0/1)
	◆	1 x SAS 3Gb/s connector (4 additional ports via the SATA brackets connected to the internal SAS headers)
	◆	2 x SAS 6Gb/s connectors (8 additional ports via the SAS brackets connected to the internal SAS headers)
	◆	Support for Intel RSTe SATA RAID 0, RAID 1
USB	◆	Up to 6 USB 2.0/1.1 ports (4 on the back panel, 2 additional ports via the USB brackets connected to the internal USB headers/GA-7PESH1)
	◆	Up to 4 USB 2.0/1.1 ports (2 on the back panel, 2 additional ports via the USB brackets connected to the internal USB headers/GA-7PESH2)

Internal Connectors	◆	1 x 24-pin ATX main power connector
	◆	2 x 8-pin ATX 12V power connector
	◆	2 x Mini SAS connectors (SAS 6Gb/s signal)
	◆	1 x Mini SAS connector (SATA 3Gb/s signal)
	◆	2 x SATA 6Gb/s connectors
	◆	1 x PSMI header
	◆	2 x CPU fan header
	◆	2 x System fan header
	◆	1 x Front panel header
	◆	1 x Back panel header
	◆	1 x USB 2.0/1.1 header
	◆	1 x TPM header
	◆	1 x SKU KEY header
	◆	1 x SPGIO header
Rear Panel I/O	◆	4 x USB 2.0/1.1 ports (GA-7PESH1)
	◆	2 x USB 2.0/1.1 ports (GA-7PESH2)
	◆	3 x RJ-45 port
	◆	1 x COM port
	◆	1 x VGA port
	◆	1 x ID Switch button
I/O Controller	◆	ASPEED® AST2300 BMC chip
Hardware Monitor	◆	System voltage detection
	◆	CPU/System temperature detection
	◆	CPU/System fan speed detection
	◆	CPU/System fan speed control
		* Whether the CPU/system fan speed control function is supported will depend on the CPU/system cooler you install.
BIOS	◆	1 x 64 Mbit flash
	◆	AMI BIOS
Form Factor	◆	EATX Form Factor; 12 inch x 13 inch, 8 layers PCB

* GIGABYTE reserves the right to make any changes to the product specifications and product-related information without prior notice.

1-3　Installing the CPU and CPU Cooler

⚠️
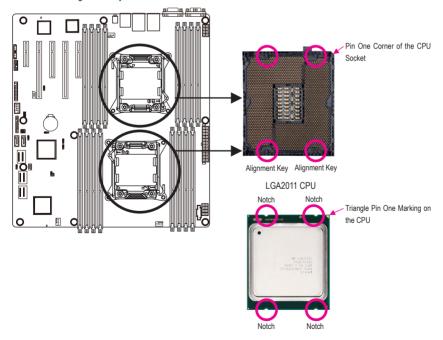
Read the following guidelines before you begin to install the CPU:
• Make sure that the motherboard supports the CPU.
  (Go to GIGABYTE's website for the latest CPU support list.)
• Always turn off the computer and unplug the power cord from the power outlet before installing the CPU to prevent hardware damage.
• Locate the pin one of the CPU. The CPU cannot be inserted if oriented incorrectly. (Or you may locate the notches on both sides of the CPU and alignment keys on the CPU socket.)
• Apply an even and thin layer of thermal grease on the surface of the CPU.
• Do not turn on the computer if the CPU cooler is not installed, otherwise overheating and damage of the CPU may occur.
• Set the CPU host frequency in accordance with the CPU specifications. It is not recommended that the system bus frequency be set beyond hardware specifications since it does not meet the standard requirements for the peripherals. If you wish to set the frequency beyond the standard specifications, please do so according to your hardware specifications including the CPU, graphics card, memory, hard drive, etc.

1-3-1　Installing the CPU

A.　Locate the alignment keys on the motherboard CPU socket and the notches on the CPU.

Pin One Corner of the CPU Socket

Alignment Key　Alignment Key

LGA2011 CPU

Notch　　Notch

Triangle Pin One Marking on the CPU

Notch　　Notch

B.   Follow the steps below to correctly install the CPU into the motherboard CPU socket.

⚠️   •   **Before installing the CPU, make sure to turn off the computer and unplug the power cord from the power outlet to prevent damage to the CPU.**
     •   **To protect the socket contacts, do not remove the protective plastic cover unless the CPU is inserted into the CPU socket. Save the cover properly and replace it if the CPU is removed.**

Lever A

Step 1:

Push the lever closest to the "unlock" marking "⌒" (below referred as lever A) down and away from the socket to release it.

Lever B

Step 2:

Push the lever closest to the "lock" marking "⌒" (below referred as lever B) down and away from the socket. Then lift the lever.
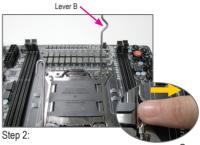
Step 3:

Gently press lever A to allow the load plate to rise. Open the load plate. (Note: DO NOT touch the socket contacts after the load plate is opened.)

Step 4:

Hold the CPU with your thumb and index fingers. Align the CPU pin one marking (triangle) with the pin one corner of the CPU socket (or align the CPU notches with the socket alignment keys) and carefully insert the CPU into the socket vertically.

Step 5:

Once the CPU is properly inserted, carefully replace the load plate. Then secure lever B under its retention tab. The protective plastic cover may pop off from the load plate during the process of engaging the lever. Remove the cover. Save the cover properly and always replace it when the CPU is not installed.

Step 6:

Finally, secure lever A under its retention tab to complete the installation of the CPU.

1-3-2   Installing the CPU Cooler

Refer to the steps below to correctly install the CPU cooler on the motherboard. (Actual installation process may differ depending the CPU cooler to be used. Refer to the user's manual for your CPU cooler.)

Step 1:
Apply an even and thin layer of thermal grease on the surface of the installed CPU.

Step 2:
Place the cooler atop the CPU, aligning the four mounting screws with the mounting holes on the ILM. (If your cooler has a fan grill which may cause interference when you tighten the screws, remove it first and replace it after tightening the screws.)

Step 3:
Use one hand to hold the cooler and the other to tighten the screws in a diagonal sequence with a screw driver. Begin tightening a screw with a few turns and repeat with the screw diagonally opposite the one you just tightened. Then do the same to the other pair. Next, fully tighten the four screws.

Step 4:
Finally, attach the power connector of the CPU cooler to the CPU fan header (CPU_FAN) on the motherboard.

Please pay more attention when removing the CPU cooler because the thermal grease/tape between the CPU cooler and CPU may adhere to the CPU. Inadequately removing the CPU cooler may damage the CPU.

1-4   Installing the Memory

Read the following guidelines before you begin to install the memory:

• Make sure that the motherboard supports the memory. It is recommended that memory of the same capacity, brand, speed, and chips be used.

(Go to GIGABYTE's website for the latest supported memory speeds and memory modules.)

• Always turn off the computer and unplug the power cord from the power outlet before installing the memory to prevent hardware damage.

• Memory modules have a foolproof design. A memory module can be installed in only one direction. If you are unable to insert the memory, switch the direction.

1-4-1   Four Channel Memory Configuration

This motherboard provides eight DDR3 memory sockets and supports Four Channel Technology. After the memory is installed, the BIOS will automatically detect the specifications and capacity of the memory. Enabling Four Channel memory mode will be four times of the original memory bandwidth.

The four DDR3 memory sockets are divided into four channels each channel has two memory sockets as following:

Channel 1: DDR3_P0_A0, DDR3_P0_A1 (For pimary CPU)
             DDR3_P0_E0, DDR3_P0_E1 (For secondary CPU)
Channel 2: DDR3_P0_B0, DDR3_P0_B1(For pimary CPU)
             DDR3_P0_F0, DDR3_P0_F1 (For secondary CPU)
Channel 3: DDR3_P0_C0, DDR3_P0_C1(For pimary CPU)
             DDR3_P0_G0, DDR3_P0_G1 (For secondary CPU)
Channel 4: DDR3_P0_D0, DDR3_P0_D1(For pimary CPU)
             DDR3_H0_F0, DDR3_P0_H1 (For secondary CPU)
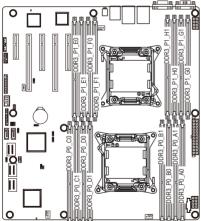
Due to CPU limitations, read the following guidelines before installing the memory in Four Channel mode.

1. Four Channel mode cannot be enabled if only one DDR3 memory module is installed.

2. When enabling Four Channel mode with two or four memory modules, it is recommended that memory of the same capacity, brand, speed, and chips be used for optimum performance.

1-4-2   Installing a Memory

⚠ **Before installing a memory module, make sure to turn off the computer and unplug the power cord from the power outlet to prevent damage to the memory module.**

Be sure to install DDR3 DIMMs on this motherboard.
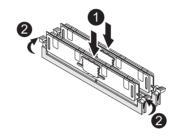
Installation Step:

Step 1.   Insert the DIMM memory module vertically into the DIMM slot, and push it down.

Step 2.   Close the plastic clip at both edges of the DIMM slots to lock the DIMM module.

Note: For dual-channel operation, DIMMs must be installed in matched pairs.

Step 3.   Reverse the installation steps when you wish to remove the DIMM module.
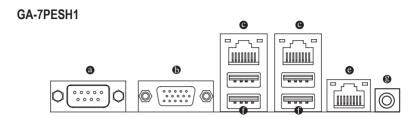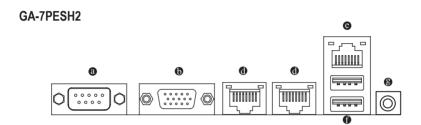
1-4-3   DIMM Population Table

R-DIMM	1N or 2N	DIMM1	DIMM0
	1N	Empty	Single-Rank
	1N	Empty	Dual-Rank
	1N	Empty	Quad-Rank
	1N	Single-Rank	Single-Rank
	1N	Single-Rank	Dual-Rank
	1N	Dual-Rank	Dual-Rank
	1N	Single-Rank	Quad-Rank
	1N	Dual-Rank	Quad-Rank
	1N	Quad-Rank	Quad-Rank

U-DIMM	1N or 2N	DIMM1	DIMM0
	1N	Empty	Single-Rank
	1N	Empty	Dual-Rank
	2N	Single-Rank	Single-Rank
	2N	Single-Rank	Dual-Rank
	2N	Dual-Rank	Dual-Rank

1-5   Back Panel Connectors

GA-7PESH1

GA-7PESH2

ⓐ **Serial Port**

Connects to serial-based mouse or data processing devices.

ⓑ **Video Port**

The video in port allows connect to video in, which can also apply to video loop thru function.

ⓒ **RJ-45 LAN Port (Gigabit Ethernet LAN Port)**

The Gigabit Ethernet LAN port provides Internet connection at up to 1 Gbps data rate. The following describes the states of the LAN port LEDs.

ⓓ **RJ-45 LAN Port (10 Gigabit Ethernet LAN Port)**

The 10 Gigabit Ethernet LAN port provides Internet connection at up to 10 Gbps data rate. The following describes the states of the LAN port LEDs.

ⓔ **KVM Server Management 10/100 LAN Port**

The LAN port provides Internet connection with data transfer speeds of 10/100Mbps.

ⓕ **USB 2.0/1.1 Port**

The USB port supports the USB 2.0/1.1 specification. Use this port for USB devices such as a USB key-board/mouse, USB printer, USB flash drive and etc.

ⓖ **ID Switch Button**

This button provide the selected unit idenfication function.

Speed LED — Link Activity LED

10/100 LAN Port

MLAN Speed LED:

State	Description
Green On	100 Mbps data rate
Green Blink	10 Mbps or 100 Mbps data rate
Off	10 Mbps data rate

Link/Activity LED:

State	Description
On	Link between system and network or no access
Blinking	Data transmission or receiving is occurring
Off	No data transmission or receiving is occurring

Speed LED — Link Activity LED

10/100/1000 LAN Port

I350 Speed LED:

State	Description
Yellow On	1 Gbps data rate
Yellow Blink	Identify 1 Gbps data rate
Green On	100 Mbps data rate
Green Blink	Identify 100 Mbps data rate
Off	10 Mbps data rate

Link/Activity LED:

State	Description
On	Link between system and network or no access
Blinking	Data transmission or receiving is occurring
Off	No data transmission or receiving is occurring

Speed LED — Link Activity LED

10/100/1000/10G LAN Port

X540 Speed LED:
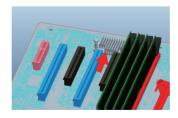
State	Description
Green On	10 Gbps data rate
Green Blink	Identify 10 Gbps data rate
Yellow On	1 Gbps data rate
Yellow Blink	Identify 1 Gbps data rate
Off	10 Mbps or 100 Mbps data rate

Link/Activity LED:

State	Description
On	Link between system and network or no access
Blinking	Data transmission or receiving is occurring
Off	No data transmission or receiving is occurring
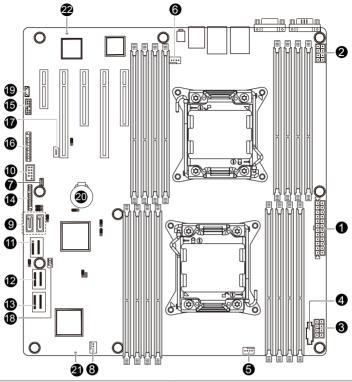
- When removing the cable connected to a back panel connector, first remove the cable from your device and then remove it from the motherboard.
- When removing the cable, pull it straight out from the connector. Do not rock it side to side to prevent an electrical short inside the cable connector.

- **Inlet airflow over 10G LAN chipset heat sink require at least 2 cubic feet per minute (CFM) else the heat sink temperature will continue to rise while 10G LAN starts functioning. (Location indicated by red arrow)**

1-6 Internal Connectors

1)	ATX1	12)	MINII_CN2
2)	P12V_AUX2	13)	MINII_CN3
3)	P12V_AUX1	14)	BP_1
4)	PWR_DET1	15)	TPM_1
5)	CPU0_FAN (forprimary CPU)	16)	F_PANEL1
6)	CPU1_FAN (for seconary CPU)	17)	IPMB1
7)	SYS_FAN1 (System Fan)	18)	SATA_SGPIO
8)	SYS_FAN2 (System Fan)	19)	SKU_KEY1
9)	SATA0/1	20)	BAT1
10)	FRONT_USB	21)	LED2
11)	MINII_CN1	22)	BMC_LED1

Read the following guidelines before connecting external devices:
- First make sure your devices are compliant with the connectors you wish to connect.
- Before installing the devices, be sure to turn off the devices and your computer. Unplug the power cord from the power outlet to prevent damage to the devices.
- After installing the device and before turning on the computer, make sure the device cable has been securely attached to the connector on the motherboard.
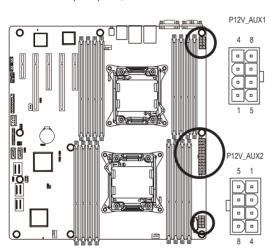
1/2/3) ATX1/P12V_AUX2/P12V_AUX1
(2x4 12V Power Connector and 2x12 Main Power Connector)

With the use of the power connector, the power supply can supply enough stable power to all the components on the motherboard. Before connecting the power connector, first make sure the power supply is turned off and all devices are properly installed. The power connector possesses a foolproof design. Connect the power supply cable to the power connector in the correct orientation. The 12V power connector mainly supplies power to the CPU. If the 12V power connector is not connected, the computer will not start.
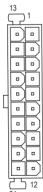
To meet expansion requirements, it is recommended that a power supply that can withstand high power consumption be used (500W or greater). If a power supply is used that does not provide the required power, the result can lead to an unstable or unbootable system.

P12V_AUX1

P12V_AUX1
P12V_AUX2

Pin No.	Definition
1	GND
2	GND
3	GND
4	GND
5	+12V
6	+12V
7	+12V
8	+12V

P12V_AUX2
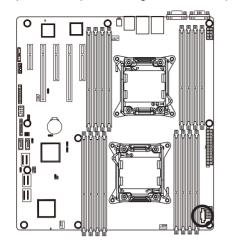
ATX1

ATX1

Pin No.	Definition	Pin No.	Definition
1	3.3V	13	3.3V
2	3.3V	14	-12V
3	GND	15	GND
4	+5V	16	PS_ON
5	GND	17	GND
6	+5V	18	GND
7	GND	19	GND
8	Power Good	20	-5V
9	5VSB (stand by +5V)	21	+5V
10	+12V	22	+5V
11	+12V	23	+5V
12	3.3V	24	GND
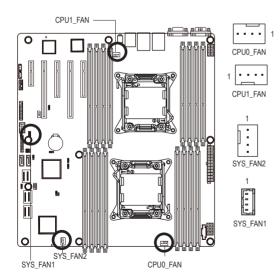
4) PWR_DET1 (Power management connector)

Pin No.	Definition
1	SMB CLK
2	SMB DATA
3	SMB Alert
4	GND
5	3.3V Sense

5/6/7/8) CPU0_FAN/CPU1_FAN/SYS_FAN1/SYS_FAN2 (CPU Fan/System Fan Headers)

The motherboard has a 4-pin CPU fan header (CPU_FAN1/2), a 4-pin (FAN4) system fan headers. Most fan headers possess a foolproof insertion design. When connecting a fan cable, be sure to connect it in the correct orientation (the black connector wire is the ground wire). The motherboard supports CPU fan speed control, which requires the use of a CPU fan with fan speed control design. For optimum heat dissipation, it is recommended that a system fan be installed inside the chassis.
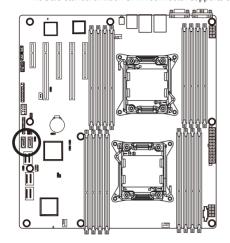
Pin No.	Definition
1	GND
2	+12V
3	Sense
4	Speed Control
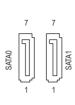
> • Be sure to connect fan cables to the fan headers to prevent your CPU and system from overheating. Overheating may result in damage to the CPU or the system may hang.
> • These fan headers are not configuration jumper blocks. Do not place a jumper cap on the headers.

9) SATA0/SATA1 (SATA 6Gb/s Connectors)

The SATA connectors conform to SATA 6Gb/s standard and are compatible with SATA 3Gb/s and 1.5Gb/s standard. Each SATA connector supports a single SATA device.

When SATA_DOM1/2 jumper are set to **Normal Mode**:

Pin No.	Definition
1	GND
2	TXP
3	TXN
4	GND
5	RXN
6	RXP
7	GND

When SATA_DOM1/2 Jumper are set to **1-2 pin**:

Pin No.	Definition
1	GND
2	TXP
3	TXN
4	GND
5	RXN
6	RXP
7	P5V
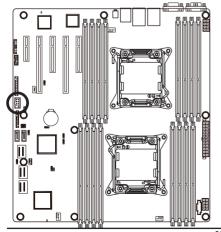
- A RAID 0 or RAID 1 configuration requires at least two hard drives. If more than two hard drives are configured, the total number of hard drives must be an even number.
- A RAID 10 configuration requires four hard drives.

(Note)   When a RAID configuration is built across the SATA 6Gb/s channels, the system performance of the RAID configuration may vary depends on the devices are connected.

10) FRONT_USB (Front USB Headers)

The headers conform to USB 2.0/1.1 specification. Each USB header can provide two USB ports via an optional USB bracket. For purchasing the optional USB bracket, please contact the local dealer.
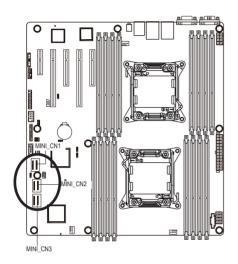
Pin No.	Definition
1	Power (5V)
2	Power (5V)
3	USB DX-
4	USB DY-
5	USB DX+
6	USB DY+
7	GND
8	GND
9	No Pin
10	NC
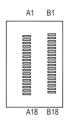
11) MINI_CN1 (Mini SAS cable connector with SATA 3Gb/s signal)

The SATA connectors conform to SATA 3Gb/s standard and are compatible with SATA 1.5Gb/s standard. Each SATA connector supports two SATA device.

12/13) MINI_CN2/MINI_CN3 (Mini SAS cable connectors)

The mini SAS connectors conform to SAS 6Gb/s standard.
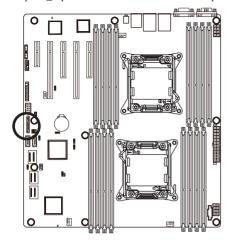
MINI_CN1

Pin No.	Definition	Pin No.	Definition
A1	GND	B1	GND
A2	RX0+	B2	TX0+
A3	RX0-	B3	TX0-
A4	GND	B4	GND
A5	RX1+	B5	TX1+
A6	RX1-	B6	TX1-
A7	GND	B7	GND
A8	SIB7	B8	SIB0
A9	SIB3	B9	SIB1
A10	SIB4	B10	SIB2
A11	SIB5	B11	SIB6
A12	GND	B12	GND
A13	RX2+	B13	TX2+
A14	RX2-	B14	TX2-
A15	GND	B15	GND
A16	RX3+	B16	TX3+
A17	RX3-	B17	TX3-
A18	GND	A18	GND

MINI_CN2
MINI_CN3

Pin No.	Definition	Pin No.	Definition
A1	GND	B1	GND
A2	RX0+	B2	TX0+
A3	RX0-	B3	TX0-
A4	GND	B4	GND
A5	RX1+	B5	TX1+
A6	RX1-	B6	TX1-
A7	GND	B7	GND
A8	SIB7	B8	SIB0
A9	SIB3	B9	SIB1
A10	SIB4	B10	SIB2
A11	SIB5	B11	SIB6
A12	GND	B12	GND
A13	RX2+	B13	TX2+
A14	RX2-	B14	TX2-
A15	GND	B15	GND
A16	RX3+	B16	TX3+
A17	RX3-	B17	TX3-
A18	GND	A18	GND

14) BP_1 (HDD Back Plane Board Hearder)

1 2

25 26

Pin No.	Definition
1	AST2300_SCGCLK
2	FM_THROTTLE_AND_N
3	AST2300_SGLD
4	IQO_FAN_12v_GATE_N
5	AST2300_SGDOUT
6	GND
7	KEY
8	RresetL_BRB
9	GND
10	BP_ALED_N
11	BP_LED_G_N
12	GND
13	AST2300_SGDIN
14	ASSESS#_LED_BPB
15	GND
16	SMB_BPB1_DATA
17	GND
18	SMB_BPB1_CLK
19	P_3V3_AUX
20	BP_HDD_TYPE
21	P_3V3_AUX
22	FAN_TYPE
23	GND
24	KEY
25	BP_PRESENSE
26	GND

15) TPM_1 (TPM Module Connector)

1 2

13 14
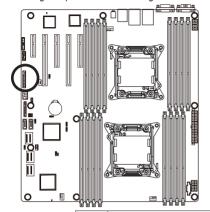
Pin No.	Definition
1	CLK_33M_TPM
2	P_3V3_AUX
3	LPC_RST_DEBUG
4	P3V3
5	LPC_LAD0
6	IRQ_SERIAL
7	LPC_LAD1
8	TPM_DET_N
9	LPC_LAD2
10	NC
11	LPC_LAD3
12	GND
13	LPC_FRAME_N
14	GND

16) F_Panel1 (Front Panel Header)

Connect the power switch, reset switch, speaker, chassis intrusion switch/sensor and system status indicator on the chassis to this header according to the pin assignments below. Note the positive and negative pins before connecting the cables.
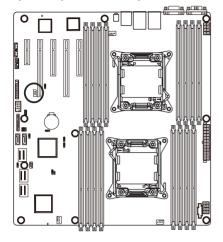
Pin No.	Signal Name	Definition
1	PWLED+	Power LED Signal anode (+)
2	5VSB	5V Stanndby Power
3	NC	No Pin
4	ID_LED+	ID LED Signal anode (+)
5	PWLED-	Power LED Signal cathode(-)
6	ID_LED-	ID LED Signal cathode(-)
7	HD+	Hard Disk LED Signal anode (+)
8	F_SYSRDY	System Front board LED Signal
9	HD-	Hard Disk LED Signal cathode(-)
10	SYS_STATUS-	System Status LED Signal cathode(-)
11	PWB+	Power Button Signal anode (+)
12	L1_ACT	LAN1 active LED Signal
13	PWB+_GND	Ground
14	L1_LINK-	LAN1 Link LED Signal cathode(-)
15	RST_BTN+	Reset button Signal anode (+)
16	SENSOR_SDA	SMBus Data Signal
17	RST_BTN_GND	Ground
18	SENSOR_SCL	SMBus Clock Signal
19	ID_SW+	ID Switch Signal anode (+)
20	CASE_OPEN-	Chassis intrusion Signal cathode(-)
21	ID_SW (GND)	Ground
22	L2_ACT	LAN2 active LED Signal
23	NMI_SW-	NMI switch Signal cathode(-)
24	L2_LINK-	LAN2 Link LED Signal cathode(-)

The front panel design may differ by chassis. A front panel module mainly consists of power switch, reset switch, power LED, hard drive activity LED, speaker and etc. When connecting your chassis front panel module to this header, make sure the wire assignments and the pin assignments are matched correctly.

17) IPMB1 (IPMB connector)
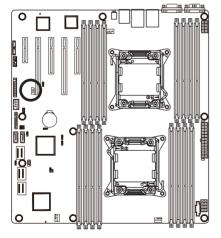
Pin No.	Definition
1	SCL
2	GND
3	SDA

18) SATA_SGPIO (SATA SGPIO Header)
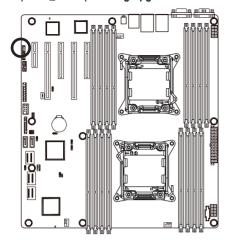
SGPIO is stands for Serial General Purpose Input/Output which is a 4-signal (or 4-wire) bus used between a Host Bus Adapter (HBA) and a backplane. Out of the 4 signals, 3 are driven by the HBA and 1 is driven by the backplane. Typically, the HBA is a storage controller located inside a server, desktop, rack or workstation computer that interfaces with Hard disk drives (HDDs) to store and retrieve data.

Pin No.	Definition
1	SGPIO_SATA_DATAIN
2	No Pin
3	SGPIO_SATA_DATAOUT
4	GND
5	GND
6	SGPIO_SATA_LOAD
7	NC
8	SGPIO_SATA_CLOCK

19) SKU_KEY1 (Patsburg Upgrade ROM Hearder)

1

3
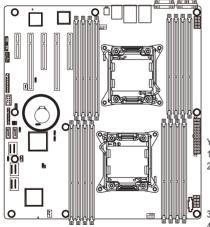
Pin No.	Definition
1	GND
2	FM_PBG_DYN_SKU_KEY
3	GND

20) BAT1 (Battery)

The battery provides power to keep the values (such as BIOS configurations, date, and time information) in the CMOS when the computer is turned off. Replace the battery when the battery voltage drops to a low level, or the CMOS values may not be accurate or may be lost.

+
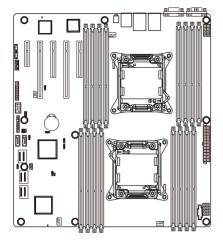
You may clear the CMOS values by removing the battery:
1. Turn off your computer and unplug the power cord.
2. Gently remove the battery from the battery holder and wait for one minute. (Or use a metal object like a screwdriver to touch the positive and negative terminals of the battery holder, making them short for 5 seconds.)
3. Replace the battery.
4. Plug in the power cord and restart your computer.

- Always turn off your computer and unplug the power cord before replacing the battery.
- Replace the battery with an equivalent one. Danger of explosion if the battery is replaced with an incorrect model.
- Contact the place of purchase or local dealer if you are not able to replace the battery by yourself or uncertain about the battery model.
- When installing the battery, note the orientation of the positive side (+) and the negative side (-) of the battery (the positive side should face up).
- Used batteries must be handled in accordance with local environmental regulations.
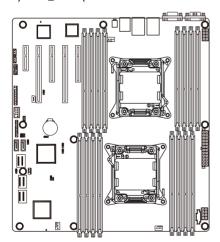
21) LED2 (LSI Firmware Readiness LED)

LED2 Link/Activity:
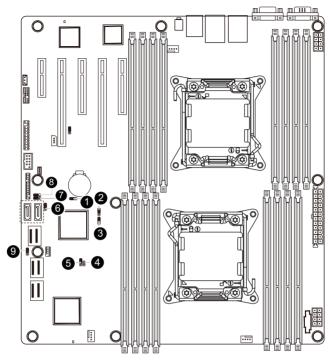
State	Description
Blinking	LSI firmware is ready
Off	LSI firmware is not ready

22) BMC_LED1 (BMC Firmware Readiness LED)

State	Description
On	BMC firmware is initial
Blinking	BMC firmware is ready
Off	System is powered off
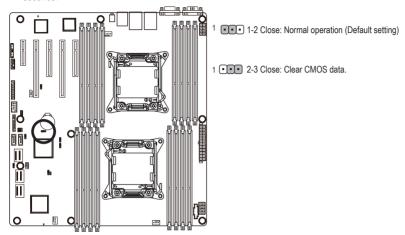
1-7   Jumper Setting

1)	CLR_CMOS1	6)	BIOS_RCVR1
2)	BIOS_WP1	7)	SATA_DOM0
3)	SSB_ME1	8)	SATA_DOM1
4)	JP1	9)	FLASH_DP1
5)	PASSWORD1		

1) CLR_CMOS1 (Clearing CMOS Jumper)
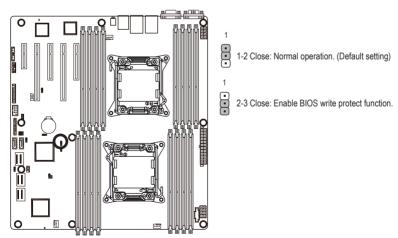
Use this jumper to clear the CMOS values (e.g. date information and BIOS configurations) and reset the CMOS values to factory defaults. To clear the CMOS values, place a jumper cap on the two pins to temporarily short the two pins or use a metal object like a screwdriver to touch the two pins for a few seconds.

1 1-2 Close: Normal operation (Default setting)

1 2-3 Close: Clear CMOS data.
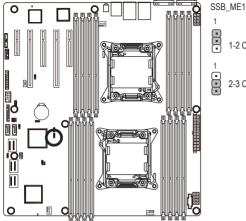
⚠ • Always turn off your computer and unplug the power cord from the power outlet before clearing the CMOS values.
• After clearing the CMOS values and before turning on your computer, be sure to remove the jumper cap from the jumper. Failure to do so may cause damage to the motherboard.
• After system restart, go to BIOS Setup Exit menu and load factory defaults (select **Load Default Values**) or manually configure the BIOS settings (refer to Chapter 2, "BIOS Setup," for BIOS configurations).

2) BIOS_WP1 (BIOS Write Protect Jumper)

1 1-2 Close: Normal operation. (Default setting)

1 2-3 Close: Enable BIOS write protect function.
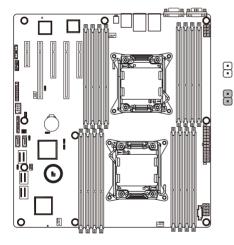
3) SSB_ME1 (ME enable/disable Jumper)

SSB_ME1

1-2 Close: Normal operation. (Default setting)
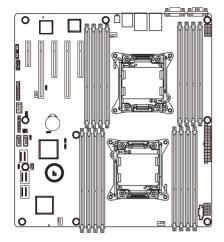
2-3 Close: Disable ME function.

4) JP5 (Case Open Intrusion Jumper)

Open: Enable chassis intrusion alert.

Close: Normal operation. (Default setting)
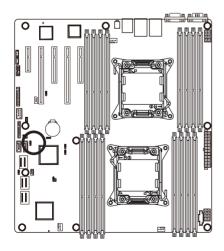
5) PASSWORD1 (Skip Supervisor Password Jumper)

1

1-2 Close: Normal operation. (Default setting)

1

2-3 Close: Skip supervisor password.

6) BIOS_RVCR1 (BIOS Recovery Jumper)

1

1-2 Close: Normal operation. (Default setting)

1

2-3 Close: BIOS recovery mode.
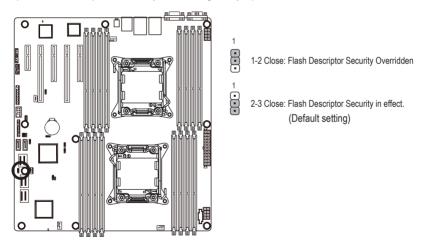
7/8) SATA_DOM0/1 (SATA DOM Jumper)

⚠️ **CAUTION!** If a SATA type hard drive is connected to the motherboard, please ensure the jumper is closed and set to **2-3 pins** (Normal mode), in order to reduce any risk of hard disk damage.

1-2 Close: Enable SATA0/SATA1 port DOM support.

2-3 Close: Normal mode. (Default setting)

9) FLASH_DP1 (Flash Descriptor Security Jumper)

1-2 Close: Flash Descriptor Security Overridden

2-3 Close: Flash Descriptor Security in effect.
        (Default setting)

Chapter 2   BIOS Setup

BIOS (Basic Input and Output System) records hardware parameters of the system in the EFI on the moth-
erboard. Its major functions include conducting the Power-On Self-Test (POST) during system startup,
saving system parameters and loading operating system, etc. BIOS includes a BIOS Setup program that
allows the user to modify basic system configuration settings or to activate certain system features. When the
power is turned off, the battery on the motherboard supplies the necessary power to the CMOS to keep the
configuration values in the CMOS.

To access the BIOS Setup program, press the <F2> key during the POST when the power is turned on.

> • BIOS flashing is potentially risky, if you do not encounter problems of using the current BIOS
>   version, it is recommended that you don't flash the BIOS. To flash the BIOS, do it with caution.
>   Inadequate BIOS flashing may result in system malfunction.
> • It is recommended that you not alter the default settings (unless you need to) to prevent system
>   instability or other unexpected results. Inadequately altering the settings may result in system's
>   failure to boot. If this occurs, try to clear the CMOS values and reset the board to default values.
>   (Refer to the "Load Optimized Defaults" section in this chapter or introductions of the battery/
>   clearing CMOS jumper in Chapter 1 for how to clear the CMOS values.)

BIOS Setup Program Function Keys

<←><→>	Move the selection bar to select the screen
<↑><↓>	Move the selection bar to select an item
<Enter>	Execute command or enter the submenu
<Esc>	Main Menu: Exit the BIOS Setup program
	Submenus: Exit current submenu
<F1>	Show descriptions of general help
<F3>	Restore the previous BIOS settings for the current submenus
<F9>	Load the Optimized BIOS default settings for the current submenus
<F10>	Save all the changes and exit the BIOS Setup program

■ **Main**

This setup page includes all the items in standard compatible BIOS.

■ **Advanced**

This setup page includes all the items of AMI BIOS special enhanced features.

(ex: Auto detect fan and temperature status, automatically configure hard disk parameters.)

■ **Chipset**

This setup page includes all the submenu options for configuring the function of North Bridge and South Bridge.

(ex: Auto detect fan and temperature status, automatically configure hard disk parameters.)

■ **Security**

Change, set, or disable supervisor and user password. Configuration supervisor password allows you to restrict access to the system and BIOS Setup.

A supervisor password allows you to make changes in BIOS Setup.

A user password only allows you to view the BIOS settings but not to make changes.

■ **Server Management**

Server additional features enabled/disabled setup menus.

■ **Boot Options**

This setup page provides items for configuration of boot sequence.

■ **Boot Manager**

This setup page provides configuration of boot up devices.

■ **Exit**

Save all the changes made in the BIOS Setup program to the CMOS and exit BIOS Setup. (Pressing <F10> can also carry out this task.)

Abandon all changes and the previous settings remain in effect. Pressing <Y> to the confirmation message will exit BIOS Setup. (Pressing <Esc> can also carry out this task.)

2-1   The Main Menu

Once you enter the BIOS Setup program, the Main Menu (as shown below) appears on the screen. Use arrow keys to move among the items and press <Enter> to accept or enter other sub-menu.

Main Menu Help
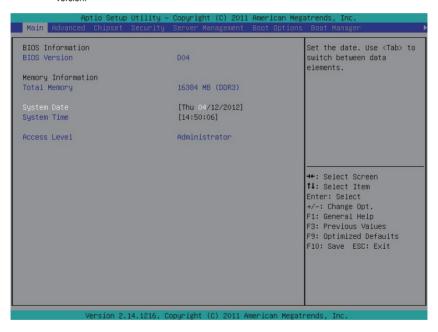
The on-screen description of a highlighted setup option is displayed on the bottom line of the Main Menu.

Submenu Help

While in a submenu, press <F1> to display a help screen (General Help) of function keys available for the menu. Press <Esc> to exit the help screen. Help for each item is in the Item Help block on the right side of the submenu.

> • When the system is not stable as usual, select the **Load Default Values** item to set your system to its defaults.
> • The BIOS Setup menus described in this chapter are for reference only and may differ by BIOS version.

```
            Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
  Main  Advanced  Chipset  Security  Server Management  Boot Options  Boot Manager       ▶

    BIOS Information                                        Set the date. Use <Tab> to
    BIOS Version                    D04                     switch between data
                                                            elements.
    Memory Information
    Total Memory                    16384 MB (DDR3)

    System Date                     [Thu 04/12/2012]
    System Time                     [14:50:06]

    Access Level                    Administrator

                                                           ↔: Select Screen
                                                           ↑↓: Select Item
                                                           Enter: Select
                                                           +/-: Change Opt.
                                                           F1: General Help
                                                           F3: Previous Values
                                                           F9: Optimized Defaults
                                                           F10: Save  ESC: Exit

            Version 2.14.1216. Copyright (C) 2011 American Megatrends, Inc.
```

☞ **BIOS Information**

☞ **BIOS Version**

Display version number of the BIOS setup utility.

☞ **Memory Information**

☞ **Total Memory**

Determines how much total memory is present during the POST.

☞ **System Date**

Set the date following the weekday-month-day- year format.

☞ **System Time**
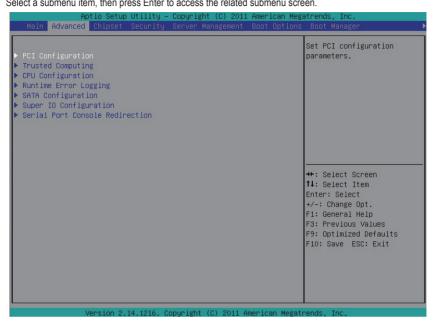
Set the system time following the hour-minute- second format.

☞ **Access Level**
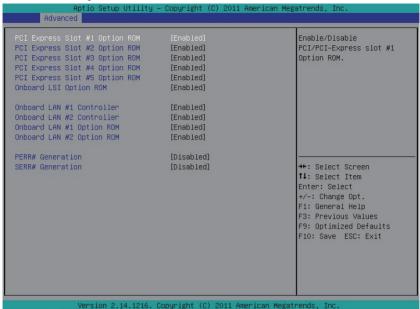
Display the current accessing level information.

2-2 Advanced Menu

The Advanced menu display submenu options for configuring the function of various hardware components. Select a submenu item, then press Enter to access the related submenu screen.

```
                 Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
        Main  Advanced  Chipset  Security  Server Management  Boot Options  Boot Manager          ▶

     ┌─────────────────────────────────────────────┬──────────────────────────────────────────┐
     │                                             │ Set PCI configuration                    │
     │ ▶ PCI Configuration                         │ parameters.                              │
     │ ▶ Trusted Computing                         │                                          │
     │ ▶ CPU Configuration                         │                                          │
     │ ▶ Runtime Error Logging                     │                                          │
     │ ▶ SATA Configuration                        │                                          │
     │ ▶ Super IO Configuration                    │                                          │
     │ ▶ Serial Port Console Redirection           │                                          │
     │                                             │                                          │
     │                                             │                                          │
     │                                             │ ↔: Select Screen                         │
     │                                             │ ↑↓: Select Item                          │
     │                                             │ Enter: Select                            │
     │                                             │ +/-: Change Opt.                         │
     │                                             │ F1: General Help                         │
     │                                             │ F3: Previous Values                      │
     │                                             │ F9: Optimized Defaults                   │
     │                                             │ F10: Save  ESC: Exit                     │
     │                                             │                                          │
     │                                             │                                          │
     │                                             │                                          │
     └─────────────────────────────────────────────┴──────────────────────────────────────────┘
                  Version 2.14.1216. Copyright (C) 2011 American Megatrends, Inc.
```

2-2-1 PCI Configuration

```
              Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
   Advanced

 PCI Express Slot #1 Option ROM       [Enabled]          Enable/Disable
 PCI Express Slot #2 Option ROM       [Enabled]          PCI/PCI-Express slot #1
 PCI Express Slot #3 Option ROM       [Enabled]          Option ROM.
 PCI Express Slot #4 Option ROM       [Enabled]
 PCI Express Slot #5 Option ROM       [Enabled]
 Onboard LSI Option ROM               [Enabled]

 Onboard LAN #1 Controller            [Enabled]
 Onboard LAN #2 Controller            [Enabled]
 Onboard LAN #1 Option ROM            [Enabled]
 Onboard LAN #2 Option ROM            [Enabled]

 PERR# Generation                     [Disabled]         ↔: Select Screen
 SERR# Generation                     [Disabled]         ↑↓: Select Item
                                                         Enter: Select
                                                         +/-: Change Opt.
                                                         F1: General Help
                                                         F3: Previous Values
                                                         F9: Optimized Defaults
                                                         F10: Save  ESC: Exit




              Version 2.14.1216. Copyright (C) 2011 American Megatrends, Inc.
```

🖋 **PCI Express Slot 1/2/3/4/5 Option ROM**

When enabled, This setting will initialize the device expansion ROM for the related PCI-E slot.
Options available: Enabled/Disabled. Default setting is **Enabled**.

🖋 **Onboard LSI Option ROM**

Enable/Disable onboard LSI option ROM.
Options available: Enabled/Disabled. Default setting is **Enabled**.

🖋 **Onboard LAN1/2 Controller**

Enable/Disable Onboard LAN controller .
Options available: Enabled/Disabled. Default setting is **Enabled**.

🖋 **LAN1/2 Option ROM**

Enable/Disable onboard LAN1 device and initialize device expansion ROM.
Options available: Enabled/Disabled. Default setting is **Disabled**.
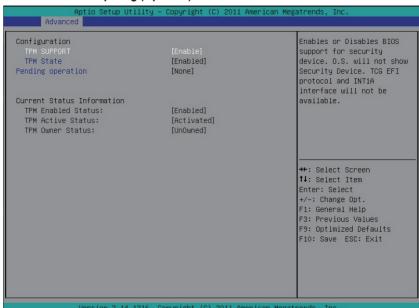
🖋 **PERR Generation**

When this item is set to enabled, PCI bus parity error (PERR) is generated and is routed to NMI.
Options available: Enabled/Disabled. Default setting is **Disabled**.

🖋 **SERR Generation**

When this item is set to enabled, PCI bus system error (SERR) is generated and is routed to NMI.
Options available: Enabled/Disabled. Default setting is **Disabled**.

2-2-2   Trusted Computing (Optioanl)

```
              Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
     Advanced

  Configuration                                                Enables or Disables BIOS
    TPM SUPPORT                      [Enable]                  support for security
    TPM State                       [Enabled]                 device. O.S. will not show
  Pending operation                 [None]                    Security Device. TCG EFI
                                                              protocol and INT1A
                                                              interface will not be
  Current Status Information                                  available.
    TPM Enabled Status:             [Enabled]
    TPM Active Status:              [Activated]
    TPM Owner Status:               [UnOwned]

                                                              →←: Select Screen
                                                              ↑↓: Select Item
                                                              Enter: Select
                                                              +/-: Change Opt.
                                                              F1: General Help
                                                              F3: Previous Values
                                                              F9: Optimized Defaults
                                                              F10: Save  ESC: Exit

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```

☞ **TPM Support**

Select Enabled to activate TPM support feature.

Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ **TPM State** (Note)

Select Enabled to activate TPM State function.

Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ **Pending Operation** (Note)

Determine the action when operation is pending.
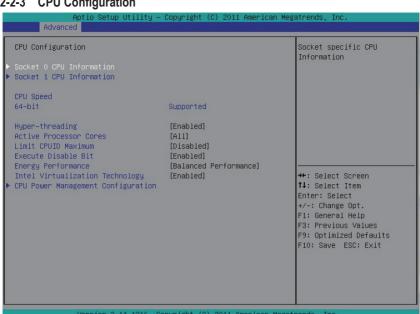
Options available: None. Default setting is **None**.

☞ **Current Status Information**

Display current TPM status information.

(Note)   This item appears when the TPM module is attached.

2-2-3 CPU Configuration

```
              Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
        Advanced

 CPU Configuration                                      Socket specific CPU
                                                        Information
▶ Socket 0 CPU Information
▶ Socket 1 CPU Information

 CPU Speed
 64-bit                            Supported

 Hyper-threading                   [Enabled]
 Active Processor Cores            [All]
 Limit CPUID Maximum               [Disabled]
 Execute Disable Bit               [Enabled]
 Energy Performance                [Balanced Performance]
 Intel Virtualization Technology   [Enabled]        →←: Select Screen
▶ CPU Power Management Configuration                 ↑↓: Select Item
                                                    Enter: Select
                                                    +/-: Change Opt.
                                                    F1: General Help
                                                    F3: Previous Values
                                                    F9: Optimized Defaults
                                                    F10: Save  ESC: Exit




              Version 2.14.1216. Copyright (C) 2011 American Megatrends, Inc.
```

```
              Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
        Advanced

 Socket 0 CPU Information

 Intel(R) Xeon(R) CPU E5-2637 0 @ 3.00GHz
 CPU Signature                     206d6
 Microcode Patch                   615
 Max CPU Speed                     3000 MHz
 Min CPU Speed                     1200 MHz
 Processor Cores                   2
 Intel HT Technology               Supported
 Intel VT-x Technology             Supported

 L1 Data Cache                     32 kB x 2
 L1 Code Cache                     32 kB x 2
 L2 Cache                          256 kB x 2         →←: Select Screen
 L3 Cache                          5120 kB            ↑↓: Select Item
                                                    Enter: Select
                                                    +/-: Change Opt.
                                                    F1: General Help
                                                    F3: Previous Values
                                                    F9: Optimized Defaults
                                                    F10: Save  ESC: Exit




              Version 2.14.1216. Copyright (C) 2011 American Megatrends, Inc.
```

Advanced

```
Socket 1 CPU Information

Intel(R) Xeon(R) CPU E5-2637 0 @ 3.00GHz
CPU Signature                      206d6
Microcode Patch                    615
Max CPU Speed                      3000 MHz
Min CPU Speed                      1200 MHz
Processor Cores                    2
Intel HT Technology                Supported
Intel VT-x Technology              Supported

L1 Data Cache                      32 kB x 2
L1 Code Cache                      32 kB x 2
L2 Cache                           256 kB x 2
L3 Cache                           5120 kB
```

→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F3: Previous Values
F9: Optimized Defaults
F10: Save ESC: Exit

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Advanced

```
CPU Power Management Configuration

Power Technology                   [Energy Efficient]
```

Enable the power
management features.

→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F3: Previous Values
F9: Optimized Defaults
F10: Save ESC: Exit

Version 2.14.1216. Copyright (C) 2011 American Megatrends, Inc.

- ☞ **Socket 0/1 Information**
- ☞ **CPU Signature**

  Displays the processor ID information.
- ☞ **Microcode Patch**

  Display Microcode patch.
- ☞ **Max CPU Speed**

  Display the maximum processor speed.
- ☞ **Min CPU Speed**

  Display the minimum processor speed.
- ☞ **Processor Cores**

  Display the information of the processor core.
- ☞ **Intel HT Technology**

  Display Intel Hyper Threading Technology function support information.
- ☞ **Intel VT-x Technology**

  Display Intel Virtualization Technology function support information.
- ☞ **Cache Information**
- ☞ **L1 Data Cache**

  Display the information of L1 Data Cache.
- ☞ **L1 Code Cache**

  Display the information of L1 Code Cache.
- ☞ **L2 Cache**

  Display the information of L2 Cache per Core.
- ☞ **L3 Cache**

  Display the information of total L3 Cache per socket.
- ☞ **Hyper Threading**

  The Intel Hyper Threading Technology allows a single processor to execute two or more separate threads concurrently. When hyper-threading is enabled, multi-threaded software applications can execute their threads, thereby improving performance.

  Options available: Enabled/Disabled. Default setting is **Enabled**.
- ☞ **Active Processor Cores** **(Note)**

  Allows you to determine whether to enable all CPU cores.

  Options available: All/1. Default setting is **All**.
- ☞ **Limit CPUID Maximum**

  When enabled, the processor will limit the maximum COUID input values to 03h when queried, even if the processor suppports a higher CPUID input value.

  When disabled, the processor will return the actual maximum CPUID input value of the processor when queried.

  Options available: Enabled/Disabled. Default setting is **Enabled**.

(Note)   This item is present only if you install a CPU that supports this feature. For more information about Intel CPUs' unique features, please visit Intel's website.

- **Execute Disable Bit**

    When enabled, the processor prevents the execution of code in data-only memory pages. This provides some protection against buffer overflow attacks.

    When disabled, the processor will not restrict code execution in any memory area. This makes the processor more vulnerable to buffer overflow attacks.

    Options available: Enabled/Disabled. Default setting is **Enabled**.

- **Energy Performace**

    Optimize between performance and power savings. Windows 2008 and later OSes overrides this value according to its power plan.

    Options available: Performace/Balanced Performace/Balanced Energy/ Energy Efficient.

    Default setting is **Balanced Performace**.

- **Intel Virtualization Technology**

    Select whether to enable the Intel Virtualization Technology function. VT allows a single platform to run multiple operating systems in independent partitions.

    Options available: Enabled/Disabled. Default setting is **Enabled**.
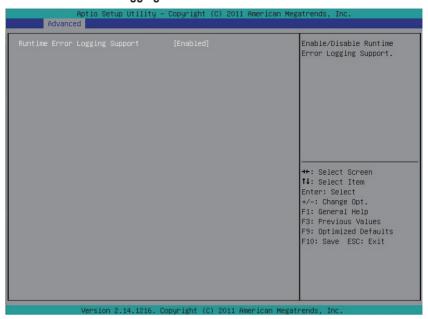
- **CPU Management**

- **Power Technology**

    Configure the power management features.

    Options available: Disable/Energy Efficient/Custom. Default setting is **Energy Efficient**.

2-2-4   Runtime Error Logging

```
            Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
     Advanced

 Runtime Error Logging Support        [Enabled]              Enable/Disable Runtime
                                                             Error Logging Support.



















                                                             →←: Select Screen
                                                             ↑↓: Select Item
                                                             Enter: Select
                                                             +/-: Change Opt.
                                                             F1: General Help
                                                             F3: Previous Values
                                                             F9: Optimized Defaults
                                                             F10: Save  ESC: Exit


            Version 2.14.1216. Copyright (C) 2011 American Megatrends, Inc.
```
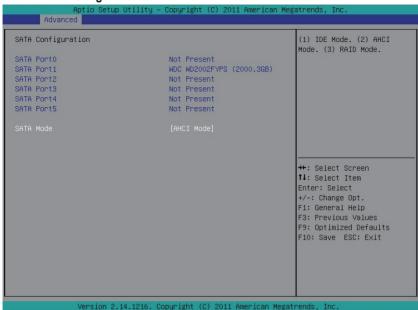
☞ **Runtime Error Logging Support**

Enable/Disable Runtime error logging support.

Options available: Enabled/Disabled. Default setting is **Enabled**.

2-2-5 SATA Configuration

```
              Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
     Advanced

   SATA Configuration                                          (1) IDE Mode. (2) AHCI
                                                               Mode. (3) RAID Mode.
   SATA Port0                      Not Present
   SATA Port1                      WDC WD2002FYPS (2000.3GB)
   SATA Port2                      Not Present
   SATA Port3                      Not Present
   SATA Port4                      Not Present
   SATA Port5                      Not Present

   SATA Mode                       [AHCI Mode]


                                                               →←: Select Screen
                                                               ↑↓: Select Item
                                                               Enter: Select
                                                               +/-: Change Opt.
                                                               F1: General Help
                                                               F3: Previous Values
                                                               F9: Optimized Defaults
                                                               F10: Save  ESC: Exit



              Version 2.14.1216. Copyright (C) 2011 American Megatrends, Inc.
```

☞ **SATA Port 0/1/2/3/4/5** (Note)

Displays the installed HDD devices information.

☞ **SATA Mode**

Select the on chip SATA type.

IDE Mode: When set to IDE, the SATA controller disables its RAID and AHCI functions and runs in the IDE emulation mode. This is not allowed to access RAID setup utility.
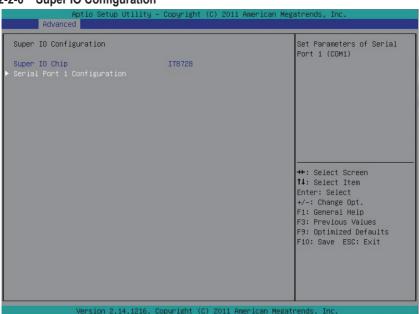
RAID Mode: When set to RAID, the SATA controllerenables both its RAID and AHCI functions. You will be allows access the RAID setup utility at boot time.
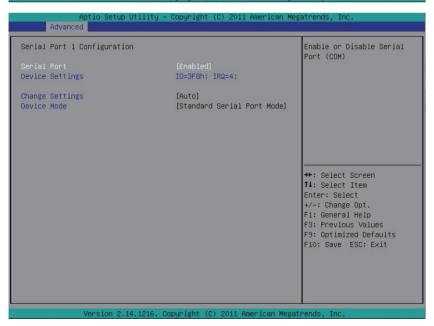
AHCI Mode: When set to AHCI,the SATA controller enables its AHCI functionality. Then the RAID function is disabled and cannot be access the RAID setup utility at boot time.

Options available: IDE/RAID/AHCI/Disabled. Default setting is **AHCI Mode**.

(Note)   This item is will not appear when the SATA mode is set ot RAID mode.

2-2-6 Super IO Configuration

```
          Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
        Advanced

  Super IO Configuration                                  Set Parameters of Serial
                                                          Port 1 (COM1)
  Super IO Chip                        IT8728
▶ Serial Port 1 Configuration




                                                          →←: Select Screen
                                                          ↑↓: Select Item
                                                          Enter: Select
                                                          +/-: Change Opt.
                                                          F1: General Help
                                                          F3: Previous Values
                                                          F9: Optimized Defaults
                                                          F10: Save  ESC: Exit



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```

```
          Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
        Advanced

  Serial Port 1 Configuration                             Enable or Disable Serial
                                                          Port (COM)
  Serial Port                          [Enabled]
  Device Settings                      IO=3F8h; IRQ=4;

  Change Settings                      [Auto]
  Device Mode                          [Standard Serial Port Mode]




                                                          →←: Select Screen
                                                          ↑↓: Select Item
                                                          Enter: Select
                                                          +/-: Change Opt.
                                                          F1: General Help
                                                          F3: Previous Values
                                                          F9: Optimized Defaults
                                                          F10: Save  ESC: Exit



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```

ȷ **Serial Port 1 Configuration**

ȷ **Serial Port 1**

When enabled allows you to configure the serial port settings. When set to Disabled, displays no configuration for the serial port.

Options available: Enabled/Disabled. Default setting is **Enabled**.

ȷ **Device Settings**

Displays the Serial Port 1/2 base I/O addressand IRQ.

ȷ **Change Settings**

Change Serial Port 1/2 device settings. When set to Auto allows the server's BIOS or OS to select a configuration.

Options available: Auto/IO=3F8; IRQ=4/IO=3F8h; IRQ=3,4,5,6,7,10,11,12/
IO=2F8h; IRQ=3,4,5,6,7,10,11,12 /IO=3E8h; IRQ=3,4,5,6,7,10,11,12/IO=2E8h; IRQ=3,4,5,6,7,10,11,12.
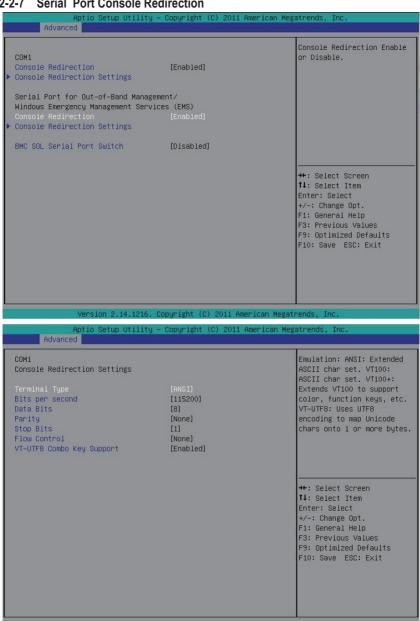
ȷ **Device Mode**

Change the Serial Port mode.

Options available: Standard Serial Port Mode (Normal Mode)/IrDA 1.0 (HP SIR) Mode (High Speed)/ ASKIRfdgdg Mode.

2-2-7   Serial Port Console Redirection

```
               Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
        Advanced

                                                              Console Redirection Enable
                                                              or Disable.
    COM1
    Console Redirection              [Enabled]
▶   Console Redirection Settings

    Serial Port for Out-of-Band Management/
    Windows Emergency Management Services (EMS)
    Console Redirection              [Enabled]
▶   Console Redirection Settings

    BMC SOL Serial Port Switch       [Disabled]

                                                              →←: Select Screen
                                                              ↑↓: Select Item
                                                              Enter: Select
                                                              +/-: Change Opt.
                                                              F1: General Help
                                                              F3: Previous Values
                                                              F9: Optimized Defaults
                                                              F10: Save  ESC: Exit

               Version 2.14.1216. Copyright (C) 2011 American Megatrends, Inc.
```

```
               Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
        Advanced

    COM1                                                      Emulation: ANSI: Extended
    Console Redirection Settings                              ASCII char set. VT100:
                                                              ASCII char set. VT100+:
    Terminal Type                    [ANSI]                   Extends VT100 to support
    Bits per second                  [115200]                 color, function keys, etc.
    Data Bits                        [8]                      VT-UTF8: Uses UTF8
    Parity                           [None]                   encoding to map Unicode
    Stop Bits                        [1]                      chars onto 1 or more bytes.
    Flow Control                     [None]
    VT-UTF8 Combo Key Support        [Enabled]

                                                              →←: Select Screen
                                                              ↑↓: Select Item
                                                              Enter: Select
                                                              +/-: Change Opt.
                                                              F1: General Help
                                                              F3: Previous Values
                                                              F9: Optimized Defaults
                                                              F10: Save  ESC: Exit

               Version 2.14.1216. Copyright (C) 2011 American Megatrends, Inc.
```

☞ **Console Redirection** [(Note)]

Select whether to enable console redirection for specified device. Console redirection enables users to manage the system from a remote location.

Options available: Enabled/Disabled. Default setting is **Disabled**.

☞ **Terminal Type**

Select a terminal type to be used for console redirection.

Options available: VT100/VT100+/ANSI /VT-UTF8.

☞ **Bits per second**

Select the baud rate for console redirection.

Options available: 9600/19200/57600/115200.

☞ **Data Bits**

Select the data bits for console redirection.

Options available: 7/8.

☞ **Parity**

A parity bit can be sent with the data bits to detect some transmission errors.

Even: parity bi is 0 if the num of 1's in the data bits is even.

Odd: parity bit is0if num of 1's the data bits is odd.

Mark: parity bit is always 1. Space: Parity bit is always 0.

Mark and Space Parity do not allow for error detection.

Options available: None/Even/Odd/Mark/Space.

☞ **Stop Bits**

Stop bits indicate the end of a serial data packet. (A start bit indicates the beginning). The standard setting is 1 stop bit. Communication with slow devices may require more than 1 stop bit.

Options available: 1/2.

☞ **Flow Control**

Flow control can prevent data loss from buffer overflow. When sending data, if the receiving buffers are full, a 'stop' signal can be sent to stop the data flow. Once the buffers are empty, a 'start' signal can be sent to re-start the flow. Hardware flow control uses two wires to send start/stop signals.

Options available: None/Hardware RTS/CTS.

☞ **VT-UTF8 Combo Key Support**

Enable/Disable VT-UTF8 Combo Key Support.

Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ **BMC SOL Serial Port Switch**
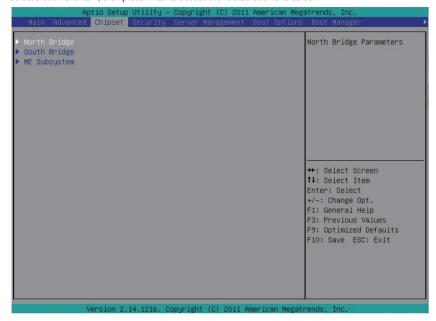
When enabled, COM1 Switch to AST2300 SOL UART.

When disabled, COM1 Switch to IT8728 SOL UART.

Options available: Enabled/Disabled.
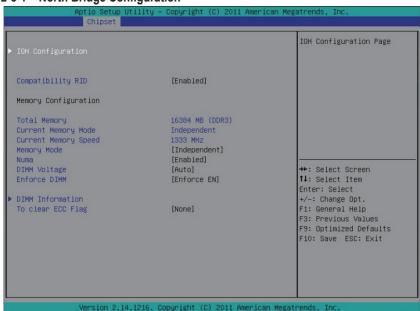
(Note)   Advanced items prompt when this item is defined.

2-3 Chipset Menu

The Chipset menu display submenu options for configuring the function of North Bridge and South Bridge. Select a submenu item, then press Enter to access the related submenu screen.

```
                Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
        Main  Advanced  Chipset  Security  Server Management  Boot Options  Boot Manager        ▶

    ▶ North Bridge                                          North Bridge Parameters
    ▶ South Bridge
    ▶ ME Subsystem




                                                        →←: Select Screen
                                                        ↑↓: Select Item
                                                        Enter: Select
                                                        +/-: Change Opt.
                                                        F1: General Help
                                                        F3: Previous Values
                                                        F9: Optimized Defaults
                                                        F10: Save  ESC: Exit


                Version 2.14.1216. Copyright (C) 2011 American Megatrends, Inc.
```

2-3-1 North Bridge Configuration

```
          Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
              Chipset

                                                              IOH Configuration Page
 ▶ IOH Configuration


   Compatibility RID              [Enabled]

   Memory Configuration

   Total Memory                   16384 MB (DDR3)
   Current Memory Mode            Independent
   Current Memory Speed           1333 MHz
   Memory Mode                    [Independent]
   Numa                           [Enabled]
   DIMM Voltage                   [Auto]          ↔: Select Screen
   Enforce DIMM                   [Enforce EN]    ↑↓: Select Item
                                                  Enter: Select
 ▶ DIMM Information                               +/-: Change Opt.
   To clear ECC Flag              [None]          F1: General Help
                                                  F3: Previous Values
                                                  F9: Optimized Defaults
                                                  F10: Save  ESC: Exit



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```

  ☞ **Compatibility RID**

    Enable/Disable Compatibility RID function.

    Options available: Enabled/Disabled. Default setting is **Enabled**.

  ☞ **Memory Configuration**

  ☞ **Total Memory**

    Determines how much total memory is present during the POST.

  ☞ **Current Memory Mode**

    Displays the cuurent memory mode. Memory mode can be determined in **Memory Mode** item.

  ☞ **Current Memory Speed**

    Displays the cuurent memory speed.

  ☞ **Memory Mode**

    Determine the memory mode.

    When set to Indendent mode, all DIMMs are available to the operation system.

    When set to Mirroring mode, the motherboard maintains two identical (redundant) copies of all data in memory.

    When set to Lockstep mode, the motherboard uses two areas of memory to run the same set of operations in parallel.

    When set to Sparing mode, a preset threshold of coorectable errors is used to trigger fail-over.

    The spare memory is put online and used as active memory in place of the failed memory.

    Options available: Indpendent /Mirroring/ Lockstep/Sparing.

🍲 **Numa**

Enable/Disable Non Uniform Memory Access (NUMA) function.

Options available: Enabled/Disabled. Default setting is **Enabled**.

🍲 **DIMM Voltage**

Configure the DIMM voltage.

Options available: Auto/ Force 1.5v/Force 1.35v. Default setting is **Auto**.

🍲 **Enforce DIMM**

To enforce POR function. When disabled, the system will enforce 1600MHz LRDIMM.

Options available: Enforce EN/Stretch EN/Enforce DIS.

2-3-1-1 IOH Configuration

```
                 Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
                      Chipset

                                                                Intel(R) VT for Directed
                                                                I/O Configuration
 ▶ Intel(R) VT for Directed I/O Configuration

   VGA Priority                        [Offboard]
   Gen3 Equalization WA's              [Disabled]

   IOH 0 PCIe port Bifurcation Control

   IOU1 – PCIe Port                    [x4x4]
   PORT 1A Link Speed                  [GEN1]
   PORT 1B Link Speed                  [GEN1]
   IOU2 – PCIe Port                    [x4x4x8]           ↔: Select Screen
   PORT 2A Link Speed                  [GEN2]             ↑↓: Select Item
   PORT 2C Link Speed                  [GEN2]             Enter: Select
   PORT 2D Link Speed                  [GEN2]             +/-: Change Opt.
   IOU3 – PCIe Port                    [x16]              F1: General Help
   PORT 3A Link Speed                  [GEN2]             F3: Previous Values
                                                          F9: Optimized Defaults
                                                          F10: Save  ESC: Exit




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```

```
                 Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
                      Chipset

   Intel(R) VT-d                       [Disabled]         Enable/Disable Intel(R)
                                                          Virtualization Technology
                                                          for Directed I/O.










                                                          ↔: Select Screen
                                                          ↑↓: Select Item
                                                          Enter: Select
                                                          +/-: Change Opt.
                                                          F1: General Help
                                                          F3: Previous Values
                                                          F9: Optimized Defaults
                                                          F10: Save  ESC: Exit



                 Version 2.14.1216. Copyright (C) 2011 American Megatrends, Inc.
```

BIOS Setup

☖ **IOH Configuration**

☖ **Intel(R) VT for Directed I/O Configuration**

☖ **VGA Priority**

Define the display device priority.
Options available: Onboard/Offboard. Default setting is **Offboard**.

☖ **Gen3 Equalization WA's**

Enable/DIsable the support for Gen3 Equalization Workaround.
Options available: Enabled/Disabled. Default setting is **Disabled**.

☖ **IOH 0/1 PCIe port Bifurcation Control**

☖ **IOU1 - PCIe Port**

Options available: x4x4/x8.

☖ **PORT 1A Link Speed**

Options available: Gen1/Gen2/Gen3.

☖ **PORT 1B Link Speed**

Options available: Gen1/Gen2/Gen3.

☖ **IOU2 - PCIe Port**

Options available: x4x4x4x4/x4x4x8/x8x4x4/x8x8/x16.

☖ **PORT 2A Link Speed**

Options available: Gen1/Gen2/Gen3.

☖ **PORT 2C Link Speed**

Options available: Gen1/Gen2/Gen3.

☖ **PORT 2D Link Speed**

Options available: Gen1/Gen2/Gen3.

☖ **IOU3 - PCIe Port**

Options available: x4x4x4x4/x4x4x8/x8x4x4/x8x8/x16.

☖ **PORT 3A Link Speed**
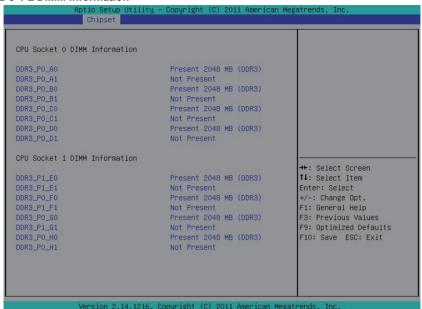
Options available: Gen1/Gen2/Gen3.

☖ **Intel(R) VT-d**

Enable/Disable Intel VT-d Technology function.
Options available: Enabled/Disabled. Default setting is **Disabled**.

2-3-1-2 DIMM Information

```
                Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
                    Chipset


    CPU Socket 0 DIMM Information


    DDR3_P0_A0                        Present 2048 MB (DDR3)
    DDR3_P0_A1                        Not Present
    DDR3_P0_B0                        Present 2048 MB (DDR3)
    DDR3_P0_B1                        Not Present
    DDR3_P0_C0                        Present 2048 MB (DDR3)
    DDR3_P0_C1                        Not Present
    DDR3_P0_D0                        Present 2048 MB (DDR3)
    DDR3_P0_D1                        Not Present


    CPU Socket 1 DIMM Information
                                                                   →←: Select Screen
    DDR3_P1_E0                        Present 2048 MB (DDR3)        ↑↓: Select Item
    DDR3_P1_E1                        Not Present                  Enter: Select
    DDR3_P0_F0                        Present 2048 MB (DDR3)        +/-: Change Opt.
    DDR3_P1_F1                        Not Present                  F1: General Help
    DDR3_P0_G0                        Present 2048 MB (DDR3)        F3: Previous Values
    DDR3_P1_G1                        Not Present                  F9: Optimized Defaults
    DDR3_P0_H0                        Present 2048 MB (DDR3)        F10: Save  ESC: Exit
    DDR3_P0_H1                        Not Present




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```

☞ **DIMM Information:**

☞ **DIMM Group: CPU Socket 0/1 DIMM Information**

CPU Socket 0:

DDR3_P0_A0/DDR3_P0_A1/DDR3_P0_B0/DDR3_P0_B1 Status

DDR3_P0_C0/DDR3_P0_C1/DDR3_P0_D0/DDR3_P0_D1 Status

The size of memory installed on each of the DDR3 slots.

CPU Socket 1:

DDR3_P0_E0/DDR3_P0_E1/DDR3_P0_F0/DDR3_P0_F1 Status

DDR3_P0_G0/DDR3_P0_G1/DDR3_P0_H0/DDR3_P0_H1 Status
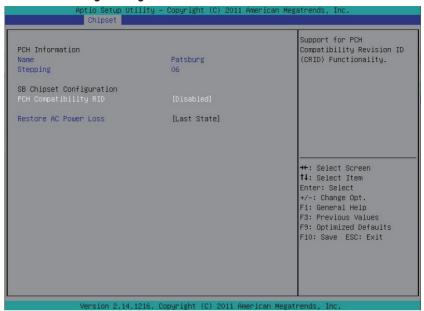
The size of memory installed on each of the DDR3 slots.

☞ **To clear ECC Flag**

When DDR3 Channel is maskoff after ECC multibit errors, it is required to clear ECC flag to make masked off channels be available.

Options available: None/To clear ECC Flag when save and exit. Default setting is **None**.

2-3-2 South Bridge Configuration

```
                Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
                    Chipset

                                                              Support for PCH
                                                              Compatibility Revision ID
   PCH Information                                            (CRID) Functionality.
   Name                          Patsburg
   Stepping                      06

   SB Chipset Configuration
   PCH Compatibility RID         [Disabled]

   Restore AC Power Loss         [Last State]



                                                              ↔: Select Screen
                                                              ↑↓: Select Item
                                                              Enter: Select
                                                              +/-: Change Opt.
                                                              F1: General Help
                                                              F3: Previous Values
                                                              F9: Optimized Defaults
                                                              F10: Save  ESC: Exit



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```

☞ **PCH Information:**

☞ **Name/Stepping Information**

Displays the name and stepping information of the south bridge.

☞ **SB Chipset Configuration**

☞ **PCH Compatibility RID**

Enable/Disable PCH Compatibility RID support.

Options available: Enabled/Disabled. Default setting is **Disabled**.
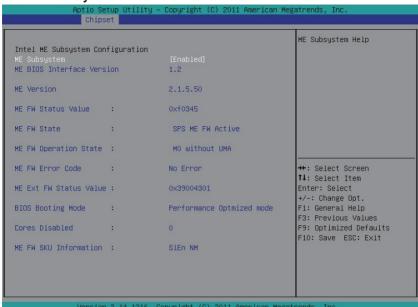
☞ **Restore on AC Power Loss** (Note)

Defines the power state to resume to after a sys- tem shutdown that is due to an interruption in AC power. When set to Last State, the system will return to the active power state prior to shutdown. When set to Stay Off, the system remains off after power shutdown.

Options available: Last State/Stay Off/Power On. The default setting depends on the BMC setting.

(Note)   When the power policy is controlled by BMC, please wait for 15-20 seconds for BMC to save the last power state.

2-3-3 ME Subsystem

```
                Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
            Chipset

                                                              ME Subsystem Help
  Intel ME Subsystem Configuration
  ME Subsystem                        [Enabled]
  ME BIOS Interface Version           1.2

  ME Version                          2.1.5.50

  ME FW Status Value    :             0xf0345

  ME FW State           :              SPS ME FW Active

  ME FW Operation State :              M0 without UMA

  ME FW Error Code      :             No Error                →←: Select Screen
                                                              ↑↓: Select Item
  ME Ext FW Status Value :            0x39004301              Enter: Select
                                                              +/-: Change Opt.
  BIOS Booting Mode     :             Performance Optmized mode  F1: General Help
                                                              F3: Previous Values
  Cores Disabled        :             0                       F9: Optimized Defaults
                                                              F10: Save  ESC: Exit
  ME FW SKU Information  :             SiEn NM




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```

☞ **ME Subsystem Configuration**
   Enable/Disable ME subsystem configuration.
   Options available: Enabled/Disabled. Default setting is **Enabled**.

2-4 Security Menu

The Security menu allows you to safeguard and protect the system from unauthorized use by setting up access passwords.

```
                  Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
  Main   Advanced   Chipset   Security   Server Management   Boot Options   Boot Manager          ▶

  Password Description                                    Set Administrator Password

  If ONLY the Administrator's password is set,
  then this only limits access to Setup and is
  only asked for when entering Setup.
  If ONLY the User's password is set, then this
  is a power on password and must be entered to
  boot or enter Setup. In Setup the User will
  have Administrator rights.
  The password length must be
  in the following range:
  Minimum length                    3
  Maximum length                    20                    ┌─────────────────────────────
                                                          →←: Select Screen
                                                          ↑↓: Select Item
  Administrator Password                                  Enter: Select
  User Password                                           +/-: Change Opt.
                                                          F1: General Help
                                                          F3: Previous Values
                                                          F9: Optimized Defaults
                                                          F10: Save  ESC: Exit




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```

There are two types of passwords that you can set:

    •   Administrator Password

           Entering this password will allow the user to access and change all settings in the Setup Utility.

    •   User Password

           Entering this password will restrict a user's access to the Setup menus. To enable or disable this field, a Administrator Password must first be set. A user can only access and modify the System Time, System Date, and Set User Password fields.

☎ **Administrator Password**

    Press Enter to configure the Administrator password.

☎ **User Password**

    Press Enter to configure the user password.

2-5 Server Management Menu

| Main | Advanced | Chipset | Security | Server Management | Boot Options | Boot Manager | ▶ |

```
▶ System Information                                    System Information
▶ BMC LAN Configuration                                 Parameters
  Select NCSI and Dedicated LAN      [Mode1 (Dedicated)]




                                                        →←: Select Screen
                                                        ↑↓: Select Item
                                                        Enter: Select
                                                        +/-: Change Opt.
                                                        F1: General Help
                                                        F3: Previous Values
                                                        F9: Optimized Defaults
                                                        F10: Save  ESC: Exit
```

☞ **System Information**

Displays basic system ID information, as well as BIOS version. Press Enter to access the related sub-menu.

☞ **BMC LAN Configuration**

BMC LAN Configuration. Press Enter to access the related submenu.
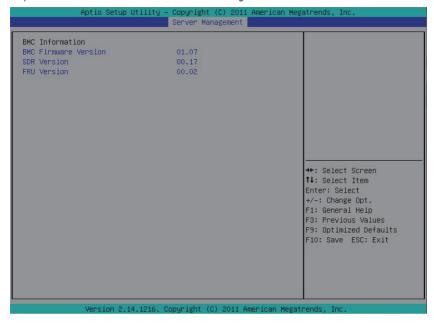
☞ **Select NCSI and Dedicated LAN**

Switch NCSI and dedicated LAN and send KCS command.
Options available: Mode2(NSCI)/ Mode1 (Dedicated).
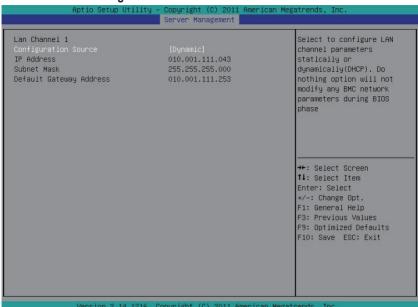
2-5-1 System Information

The System Management submenu is a simple display page for basic system ID information, as well as System product information. Items on this window are non-configurable.

```
              Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
                                    Server Management

       BMC Information
       BMC Firmware Version            01.07
       SDR Version                     00.17
       FRU Version                     00.02

                                                        →←: Select Screen
                                                        ↑↓: Select Item
                                                        Enter: Select
                                                        +/-: Change Opt.
                                                        F1: General Help
                                                        F3: Previous Values
                                                        F9: Optimized Defaults
                                                        F10: Save  ESC: Exit

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```

2-5-2 BMC LAN Configuration

```
            Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
                                Server Management

 Lan Channel 1                                          Select to configure LAN
 Configuration Source              [Dynamic]            channel parameters
 IP Address                        010.001.111.043      statically or
 Subnet Mask                       255.255.255.000      dynamically(DHCP). Do
 Default Gateway Address           010.001.111.253      nothing option will not
                                                        modify any BMC network
                                                        parameters during BIOS
                                                        phase



                                                        →←: Select Screen
                                                        ↑↓: Select Item
                                                        Enter: Select
                                                        +/-: Change Opt.
                                                        F1: General Help
                                                        F3: Previous Values
                                                        F9: Optimized Defaults
                                                        F10: Save  ESC: Exit



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```

☞ **Configuration Source**

Select to configure LAN channel parameters statically or dynamically (DHCP). Do nothing option willnot modify any BMC network parameters during BIOS phase.

Options available: Static/Dynamic/Do Nothing.

☞ **IP Address**

Display IP Address information.

☞ **Subnet Mask**

Display Subnet Mask information.
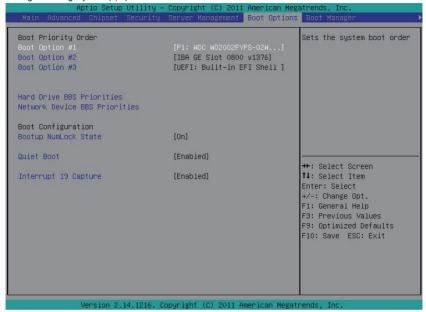
Please note that the IP address must be in three digitals, for example, 192.168.000.001.

☞ **Default Gateway Address**

Display Default Gateway Address information.

2-6   Boot Option Menu

The Boot menu allows you to set the drive priority during system boot-up. BIOS setup will display an error message if the legacy drive(s) specified is not bootable.

```
                    Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
   Main   Advanced   Chipset   Security   Server Management   Boot Options   Boot Manager            ▶

Boot Priority Order                                              Sets the system boot order
Boot Option #1                      [P1: WDC WD2002FYPS-02W...]
Boot Option #2                      [IBA GE Slot 0800 v1376]
Boot Option #3                      [UEFI: Built-in EFI Shell ]


Hard Drive BBS Priorities
Network Device BBS Priorities

Boot Configuration
Bootup NumLock State                [On]

Quiet Boot                          [Enabled]              ┌──────────────────────────────
                                                           →←: Select Screen
Interrupt 19 Capture                [Enabled]              ↑↓: Select Item
                                                           Enter: Select
                                                           +/-: Change Opt.
                                                           F1: General Help
                                                           F3: Previous Values
                                                           F9: Optimized Defaults
                                                           F10: Save  ESC: Exit



                    Version 2.14.1216. Copyright (C) 2011 American Megatrends, Inc.
```

  ☞ **Boot Priority Order**

  ☞ **Boot Option**

    Press Enter to configure the boot priority.

    By default, the server searches for boot devices in the following secquence:

    1.   Hard drive.

    2.   Network device.

    3.   UEFI device.

  ☞ **Hard Drive BBS Priorities**

    Press Enter to configure the boot priority.

  ☞ **Network Device BBS Priorities**

    Press Enter to configure the boot priority.

  ☞ **Bootup Configuration**

  ☞ **Bootup NumLock State**

    Enable or Disable Bootup NumLock function.

    Options available: On/Off. Default setting is **On**.

  ☞ **Quiet Boot**

    Enables or disables showing the logo during POST.

    Options available: Enabled/Disabled. Default setting is **Disabled**.

● **Interrupt 19 Capture**

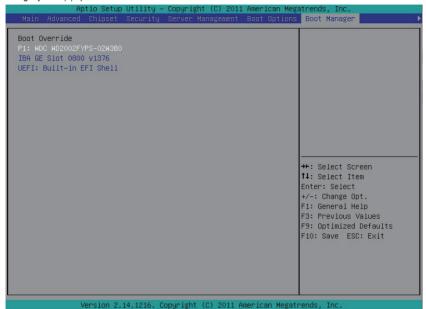Interrupt 19 is the software interrupt that handles the boot disk function. When enabled, this BIOS feature allows the ROM BIOS of those host adaptors to "capture" Interrupt 19 during the boot process so that drives attached to these adaptors can function as bootable disks.
Options available: Enabled/Disabled. Default setting is **Enabled**.

2-7 Boot Manager

The Boot manager menu allows you to specify the boot-up drive. BIOS setup will display an error message if the legacy drive(s) specified is not bootable.

```
                 Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
   Main  Advanced  Chipset  Security  Server Management  Boot Options  Boot Manager                  ▶

  Boot Override
  P1: WDC WD2002FYPS-02W3B0
  IBA GE Slot 0800 v1376
  UEFI: Built-in EFI Shell


                                                      ┌─────────────────────────────
                                                      →←: Select Screen
                                                      ↑↓: Select Item
                                                      Enter: Select
                                                      +/-: Change Opt.
                                                      F1: General Help
                                                      F3: Previous Values
                                                      F9: Optimized Defaults
                                                      F10: Save  ESC: Exit




                 Version 2.14.1216. Copyright (C) 2011 American Megatrends, Inc.
```

☞ **Boot Override**

☞ **P1:**

Press Enter to configure the device as the boot-up drive.
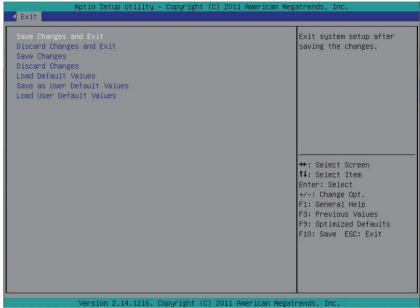
☞ **IBA BE Slot 0800 v1376:**

Press Enter to configure the device as the boot-up drive.

☞ **UEFI: Built-in EFI Shell**

Press Enter to configure the device as the boot-up drive.

2-8 Exit Menu

The Exit menu displays the various options to quit from the BIOS setup. Highlight any of the exit options then press **Enter**.

```
             Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
┌─ Exit ─────────────────────────────────────────────────────────────────────┐

  Save Changes and Exit                              Exit system setup after
  Discard Changes and Exit                           saving the changes.
  Save Changes
  Discard Changes
  Load Default Values
  Save as User Default Values
  Load User Default Values


                                                     ─────────────────────────
                                                     ↔: Select Screen
                                                     ↑↓: Select Item
                                                     Enter: Select
                                                     +/-: Change Opt.
                                                     F1: General Help
                                                     F3: Previous Values
                                                     F9: Optimized Defaults
                                                     F10: Save  ESC: Exit


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```

☞ **Save Changes and Exit**

Saves changes made and close the BIOS setup.
Options available: Yes/No.

☞ **Discard Changes and Exit**

Discards changes made and close the BIOS setup.
Options available: Yes/No.

☞ **Save Changes**

Saves changes made in the BIOS setup.
Options available: Yes/No.

☞ **Discard Changes**

Discards all changes made in the BIOS setup.
Options available: Yes/No.

☞ **Load Default Values**

Loads the default settings for all BIOS setup parameters. Setup Defaults are quite demanding in terms of resources consumption. If you are using low-speed memory chips or other kinds of low-performance components and you choose to load these settings, the system might not function properly.
Options available: Yes/No.

☞ **Save as User Default Values**

Saves as user default and close the BIOS setup.

BIOS Setup

Options available: Yes/No.

☞ **Load User Default Values**

Loads the user default settings for all BIOS setup parameters.
Options available: Yes/No.